

5
cont

configured to be responsive to electronic signals.

Claim 23. Apparatus as claimed in Claim 21 wherein said adjustment element is adjustable in a fashion such that said output may include a combination of a first and a second of said electronic signals or a combination of said second and a third of said electronic signals.

Claim 24. Apparatus as claimed in Claim 21 wherein said resistance means is arranged in a continuous loop.

Claim 25. Apparatus as claimed in Claim 21 wherein said resistance means is arranged in a circular fashion with said responsive terminals being arranged substantially equally spaced along said resistance means.

R E M A R K S:

With respect to the Examiner's technical objections to Figure 5 and Figure 7, proposed drawing corrections are being submitted. It is not exactly clear what the examiner means by views shown with reference line A as a guide in the objection to Figure 5. Applicant has tried to contact the Examiner by telephone to clarify this point, but so far has been unsuccessful. The line A-A denotes a section view, and is not what Applicant would normally term a reference line. Applicant has drawn proposed left side view looking to the right and front view looking toward the back which it is hoped will overcome Examiner's objections.

Figure 7 has been split into Figures 7 and 8 with the remainder of Figure 7 combined into a single drawing as taught in the application.

meet the Examiner's objections. The Applicant has also amended Figure 2 to identify the input into the fixed phase shift means 6A.

The Examiner rejected Claims 1-16 under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the invention. The Applicant respectfully disagrees with the Examiner's 112 rejections.

With respect to the rejection of Claims 1-6 given in paragraph 4 of the Office Action, (and the later objection to Claim 15) the Applicant believes that the claims as drafted recite a fully functional invention. Applicant believes the use of the word extending in the Claims is proper in that the resistance stretches from one signal to another (i.e. extends between them) as is shown in the schematic diagrams of the invention. Applicant has, however, amended the claims to more clearly distinguish and point out the invention. In particular, Applicant has included the word coupling in the claims in addition to the word "extending" to more clearly describe the relationship between the signals and resistances. This relationship can easily be seen by even a cursory viewing of the prior art Figure 1 and a figure of the invention - for example Figure 3. (Marked drawings attached). Specifically, Figure 1 has an "output" A tapped off of a "resistance" B extending between an "input signal" C and a "phase shifted input signal" D. These are the terms used in the preamble of, for example, Claim 1 (or Claim 15). The Figure 3 disclosure differs from this prior art in having a "further phase shifted input signal" E and by having the "resistance" B

creased range of available phase shift", again terms used in the example, Claim 1.

The Applicant believes that a person skilled in the art would have no problem recognizing the terms utilized in the Claims and in applying them to physical devices. There is no, and should be no, need to define the exact values of "phase shifting" and "further phase shifting" in the Claims, especially because these values can vary from device to device. See for example the bottom of page 6 of the specification . The specifics of the preamble, (the connection of the resistance, the use of a tap as an output, and the connection of the phase shifter) are all believed to be readily understood from the specification by one skilled in the art. The details of the actual physical construction of a device would vary depending on the implementation of the invention.

With respect to the Examiner's objection to Claims 10-12 as not appearing in the drawings, the Applicant respectfully requests the Examiner's reconsideration of this objection. Specifically, Claims 10-12 refer to an electrically selectable resistance. This resistance can be the resistance 7a of Figure 2, the resistance 17 of Figure 7 or otherwise (see the top of page 9 of the specification for example), and is described in the specification page 10 last paragraph through the middle of page 12. The Applicant notes that the schematic symbol for a resistance is the same for electrical or mechanical implementations.

The last line of Claim 2 has been amended as

Claim 3 has been amended to recite the use of the input signal for the further phase shifted input signal.

Claim 4 has been amended to more clearly specify the function and coupling of the possible even further phase shifted signal (i.e. Four signals: input, phase shifted, further phase shifted and even further phase shifted). The Applicant notes that the "resistance" of the Claims is not directed to any specific number of resistors, the number of resistors only affecting the steps of adjustability of the output signal.

Claim 5. As presently amended, the even further phase shifted input signal is specified as being phase shifted by 360° with respect to the input signal (the language of the claim is not intended to exclude coverage of signals having 0° or integer multiple of 360° phase shifts). Examiner states that if a signal is phase shifted by 360° then it has no phase shift. This is not entirely correct. It is true that for repetitive signals such as a sine wave that the relative phase shift between a signal and a 360° phase shifted signal is 0° and therefore there is no relative phase shift, however this does not mean that the phase shifted signal was not operated on to phase shift by 360° . The claim however does not specify how or if this signal is operated on but rather that the signal has a relative phase of 360° (or 0°) which would allow the input signal or a shifted version thereof to be utilized.

Claim 7. The word "counter" has been removed from the claim so that it recites just a ring as pointed out by the Examiner. It should be noted however that Figure 6

related rights in the invention by the present amendment.

Claim 8. The claim is intended to limit the invention to the use of a single 360° resistive means such as described in reference to Figure 3. Again, this can be by an infinite number of taps (infinitely variable), by individual units operating together (step variable) or by other means. Once again, it is intended that the phrase resistive as used in the claims cover a variety of resistive devices and functions, not just resistors. For example: Field Effect Transistors, attenuators and multipliers can be used as resistances, as is taught in the disclosure or otherwise well known in the art.

Claim 9. This claim means that the tap may be changed mechanically, such as by wiper action, movement, or other mechanical selection, as compared to an electrical movement such as would be done with multipliers, attenuators or Field Effect Transistors.

Claim 13 and 14 have been rewritten in independent form to more clearly point out and distinguish the claimed invention, and is believed to overcome the Examiner's rejection.

Claim 16. The delay means of this claim is discussed in the specification at the top of page 9.

The Examiner further rejected Claims 1-16 under 35 U.S.C. 103 as being patentable over Hoff, Jr. et al. pointing out in particular variable resistor R3. The Applicant respectfully requests the Examiner's reconsideration of this rejection. The Hoff, Jr. reference utilizes

produce a firing signal of a different phase angle than the voltage applied to the load (reference column 2 lines 60-64, column 5 lines 52-69).

The Hoff reference is totally distinct from the invention of this present application (as previously described). The Hoff reference is also totally distinct from the Claims. For example Claim 1 calls for:

"..an output tapped off of a resistance coupled to and extending between an input signal and a phase shifted input signal.."

Claim 1 further calls for:

"..the resistance further extending and coupling to said further phase shifted input signal.."

These physical recitations are totally missing from the single series resistor R3 of the Hoff device. Given this distinctiveness, the Applicant believes that the fact that Hoff might also phase shift a signal is irrelevant to the issue of patentability of the currently pending Claims. The Applicant therefore respectfully requests the Examiner's reconsideration of the rejection of Claims 1-16.

New Claims 17-25 have been added in order to round out coverage of the invention in view of the amendments to Claims 1-16. These Claims additionally define the terminals on the resistive means which are responsive to the phase shifted signals, in addition to an adjustment element.

In that Applicant believes that all of the claims are in condition for allowance, favorable action in that respect is solicited.

Respectfully submitted,

WOODLING, KROST AND RUST

By

Charles R. Rust (216) 241-4159
Registration No. 18,716

cr:g:v
Enc.